"You're just one of the group when you're embedded": report from a mixed-method investigation of the research-embedded health librarian experience* 🏥 ▪C

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Objective: Embedded librarianship has received much attention in recent years. A model of embeddedness rarely discussed to date is that of research-embedded health librarians (REHLs). This study explores the characteristics of Canadian REHLs and the situations in which they are employed.

Methods: The authors employed a sequential, mixed-method design. An online survey provided descriptive statistics about REHLs' positions and work experiences. This informed a series of focus group interviews that expanded upon the survey. Through constant comparison, we conducted qualitative descriptive analysis of the interviews.

Results: Based on twenty-nine survey responses and four group interviews, we created a portrait of a "typical" REHL and discovered themes relevant to REHL work. REHLs may identify more strongly as researchers than as librarians, with corresponding professional needs and rewards. REHLs value "belonging" to the research team, involvement in full project lifecycles, and in-depth relationships with nonlibrarian colleagues. Despite widely expressed job satisfaction, many REHLs struggle with isolation from library and information science peers and relative lack of job security.

Conclusions: REHLs differ from non-embedded health librarians, as well as from other types of embedded librarians. REHLs' work also differs from just a decade or two ago, prior to widespread Internet access to digital resources.

Implications: Given that research-embedded librarianship appears to be a distinct and growing subset of health librarianship, libraries, master's of library and information science programs, and professional associations will need to respond to the support and education needs of REHLs or risk losing them to the health research field.

INTRODUCTION

Embedded librarianship, in which librarians leave the library to provide highly tailored information services to user groups with whom they are affiliated, has attracted a significant amount of attention over recent years, with both the Medical Library Association (MLA) [1] and Special Libraries Association (SLA) [2] issuing reports on embedded models of librarianship. Within the phenomenon, three primary models of embeddedness have emerged: academic librarians who are integrated into physical or online courses [3–10], special librarians who leave the centralized corporate library to collocate with users [2, 11, 12], and medical librarians who serve as clinical informationists [13–17] or information specialists in context (ISICs) [15, 18, 19].

Shumaker's recent book on embedded librarianship [20] extensively reviews the history and evolution of these major models as well as other areas with potential for embeddedness, such as public and school libraries. Building on his previous report for SLA, in which embedded librarians were defined as "direct information service providers who provide specialized services to one or more groups within the organization" [2], Shumaker identifies three core factors that he asserts define embedded librarianship: ongoing working relationships, knowledge of and commitment to the group's goals, and highly valuable and customized contributions to the work of the group in which the librarian is embedded.

In health librarianship, the clinical informationist/ISIC model has been much discussed and studied since the Davidoff and Florance article in 2000 that established the term "informationist" and sparked greater interest on the part of health systems in clinical embedded librarianship [13]. A 2006 multicenter MLA study defined an ISIC or informationist as "an individual who possesses advanced information seeking and appraisal skills and knowledge of the information environment as well as advanced knowledge in a domain of healthcare/research and employs this expertise as a member of clinical research teams" [1]. The emphasis on additional, often clinically oriented, post-master's of library and information science (LIS) training is common, although not universal, in the clinical informationist literature. Studies have followed up on clinical informationist initiatives [21, 22], noting the growth and evolution of the clinical

🏥 This article has been approved for the Medical Library Association's Independent Reading Program <http://www.mlanet.org/education/irp/>.

▪C Supplemental Appendix and Appendix B are available with the online version of this journal.

informationist specialization, as well as the importance of both commitment from management and a high level of informationist expertise. Qualitative explorations of clinically embedded librarians' experiences [23, 24] have underscored and affirmed expert searching as core to informationists' work, as well as the need for informationists to assume an insider-outsider role to understand and add value to the clinical team.

A subset of embedded librarianship not much discussed in the literature, yet noted in preliminary research and anecdotes as prominent and possibly growing, especially in health, is that of librarians embedded in research groups or teams. Carlson and Neale's exploration of ''embedded research librarians''—academic liaison librarians embedded within research groups at their universities—identifies degrees of embeddedness, ranging from individual project-based integration to ongoing programmatic integration [25]. Lorenzetti and Rutherford's preliminary grounded theory study of information professionals' integration into health research teams explored facilitating and constraining factors experienced by embedded information professionals [26]. Both of these early explorations of research-embedded librarianship emphasize the importance of relationship building, organizational support, and willingness to engage in interdisciplinary work outside of one's comfort zone.

The authors suggest that there is an emerging group of embedded librarians, particularly prominent in health disciplines, who do not fully conform to the characteristics of either academic liaison librarians or clinically embedded informationists: research-embedded librarians. These research-embedded health librarians (REHLs) may have experiences that differ from those of more traditional and embedded health librarians in hospital or academic library settings. This paper proposes a definition of research-embedded health librarianship and explores the research question: ''What are the characteristics of research-embedded health librarians and of the situations in which they are employed in Canada?''

To explore the phenomenon of research-embedded health librarianship, our team of four current or former REHLs conducted a bilingual, nationwide, mixed-methods investigation that compared the demographics of REHLs with other health librarians and explored the work and experiences of REHLs in Canada. Our prior paper reported the comparative demographics of REHLs and non-REHLs, finding that, when compared with non-research-embedded health librarians, REHLs tended to be both younger and newer to the profession, more likely to work for research institutes and nonprofit organizations, less likely to work in hospital environments, and more likely to be hired on term-specific contracts than on a permanent basis [27]. This article follows on those findings and takes a closer look at REHLs and their work. For the purposes of both studies, our working definition of an REHL is as follows:

A research-embedded health librarian: **participates in a research team(s)** rather than focusing on traditional library management and services *and* **provides tailored, intensive information services** to a health research team with which she or he is integrated.

The following were not, for the purposes of this study, considered to be REHLs: academic liaison librarians, clinical informationists, general hospital librarians, librarians with library management–focused jobs, and self-employed information consultants. However, REHLs may hold other non-embedded positions concurrently with a research-embedded job.

METHODS

Aiming to generate a portrait of the characteristics and employment situations of REHLs, we collected data through: (1) an online, bilingual (French/English) survey and (2) face-to-face and online focus group interviews with REHLs. The study was approved by the ethical review boards of the University of Alberta and University of British Columbia.

Data collection

The REHL online survey was an immediate follow-up to a more general survey of 191 Canadian health librarians conducted from March to April 2011. Survey questions were based on themes and surveys from previous literature on embedded librarianship (in particular, the Shumaker, Talley, and Miervaldis SLA report [2]) as well as attributes of REHL experiences that we thought were important to explore, capture, or benchmark. The survey was drafted in English, translated into French to ensure accessibility across Canada, and piloted on a small group of health librarians who had formerly worked as REHLs. The survey was administered via the bilingual Canadian FluidSurveys online software over a period of four weeks in March to April 2011.

Survey participants were recruited via CANMED-LIB (the primary email discussion list for Canadian health librarians) and various smaller Canadian email discussion lists of interest to health librarians. All Canadian health librarians and information specialists were invited to participate in the general survey, which included questions about educational background and career history, employment conditions, and some demographic information. The total number of Canadian health information professionals is unknown, preventing us from estimating relative size of the REHL population or calculating statistical significance of these exploratory findings. However, the magnitude of response to this survey was similar to the responses received by the regular national survey conducted by the Canadian Health Libraries Association/Association des bibliothéques de la santé du Canada, the most recent iteration of which received 186 responses (157 of these from the 341 association members) [28].

Upon completion of the general survey, respondents were presented with our working definition of

an REHL. Those who self-identified as meeting this definition were invited to opt-in to a second survey module focused on their professional roles and responsibilities. More complete details of the design and implementation of the general online survey are reported elsewhere [27]. REHL questions (English version) are included in Appendix A (online only).

We recruited focus group participants through the REHL survey module, where respondents were invited to supply contact information for possible follow-up interview, and through Canadian health library networks (email lists and our professional networks). We conducted 4 focus group interviews, 3 in English (participant total n=11) and 1 in French (participant n=3). Four of the focus group participants were known to have previously answered the online survey. The first of the English group interviews was conducted in person at a national health librarianship conference; the rest were conducted online via WebEx Meeting Center. Two members of the investigation team assisted with each interview, one as interviewer and the other as observer and note-taker. Interviews ranged from forty-five to eighty-five minutes, with online focus groups generally requiring additional time due to technical issues. We audio-recorded and transcribed the interviews for analysis. While the interview guide (Appendix B, online only) revolved around concepts of identity, contributions, and challenges, the semi-structured format allowed additional themes to emerge.

Data analysis

Descriptive statistical analysis of the survey responses informed the subsequent focus group interviews.† We analyzed focus group transcripts using qualitative descriptive analysis [29], with an approach to coding that was heavily influenced by grounded theory methods [30]. Through constant comparison [31], we built up from basic, open codes to develop selective, thematic codes related to the characteristics, work, and experiences of REHL study participants. Coding was done by hand; initial codebooks were developed by Greyson (English) and Surette (French) and then tested, expanded upon, and validated by coauthors. Focus groups were analyzed in their original languages and compared to affirm and/or challenge emergent themes. Differences among coders were resolved via discussion. Selected key passages from the French interviews were fully translated into English for the purpose of this report.

The ''insider'' status, all of whom had work experience as REHLs, shaped both the data collection and analytic lens. Social science research traditions have grappled with the advantages (e.g., ease of interaction and greater understanding of the population of interest) and disadvantages (e.g., lesser ''objectivity'' and potential for erroneous assumptions of understanding others' experiences) of insider and

† Incomplete module responses were included in the analysis as long as respondents clicked the ''submit'' button on the final page of the survey.

outsider epistemologies for decades [32]. While our REHL experiences were not included as data for this study, such experiences necessarily aided us in tailoring interview questions to an REHL audience, guiding the focus group conversations, and interpreting the data.

RESULTS

Survey results

Of the 191 individuals who completed the general online survey, 39 (20.4%) identified themselves as REHLs according to the study's definition. Every REHL accepted the invitation to proceed with the follow-up survey. All survey questions were optional, thus responses to some questions do not total 39.

Job description. Job titles fell into 4 categories: librarian/bibliothécaire, information specialist or scientist/documentaliste, researcher/analyst, and other (Figure 1). Approximately one-third of the respondents (n=14) held librarian positions, and another third (n=13) had information specialist jobs. Of the remainder, the majority (n=9) had research positions that were not necessarily librarian-specific. Nearly half of these jobs were funded through operating funds of an organization (n=18), while others were grant-funded positions (n=11). Several respondents were funded via other means (n=7) or did not respond (n=3).

REHL positions were not always full time and not always a respondent's only job. Less than half (n=15) indicated that their REHL hours equaled their total work hours per week. Just over half (n=20) of the respondents worked as solo librarians. Among the rest (n=18), the number of librarian colleagues ranged from 1 (most commonly) to a high of 15.

Responsibilities performed. We asked how frequently respondents performed thirteen categories of research librarian tasks as REHLs (Table 1). Information-related elements of the research process dominated, with research tasks that did not necessarily require information expertise following. ''Traditional'' library tasks such as library management and staff supervision were the least commonly performed and most commonly never performed. Literature searching emerged as a near-universal core responsibility. Other tasks conducted regularly by the majority were: research team meetings; literature analysis, scoping, or summarization; general reference; and horizon scanning/current awareness. Additional major responsibilities that were not captured by the thirteen categories included: financial/budget management, website maintenance, grant proposal writing, project planning, interlibrary loans, information systems management, knowledge management, and review screening and coding.

Embeddedness. In our sample, nearly half of the survey respondents (n=17) worked with a small population of 1 to 5 researchers, and almost one-third (n=12) worked with 6 to 15. The rest (n=7) worked with 16 to 30 or did not reply (n=3) (Figure 2).

Figure 1
Job titles by category
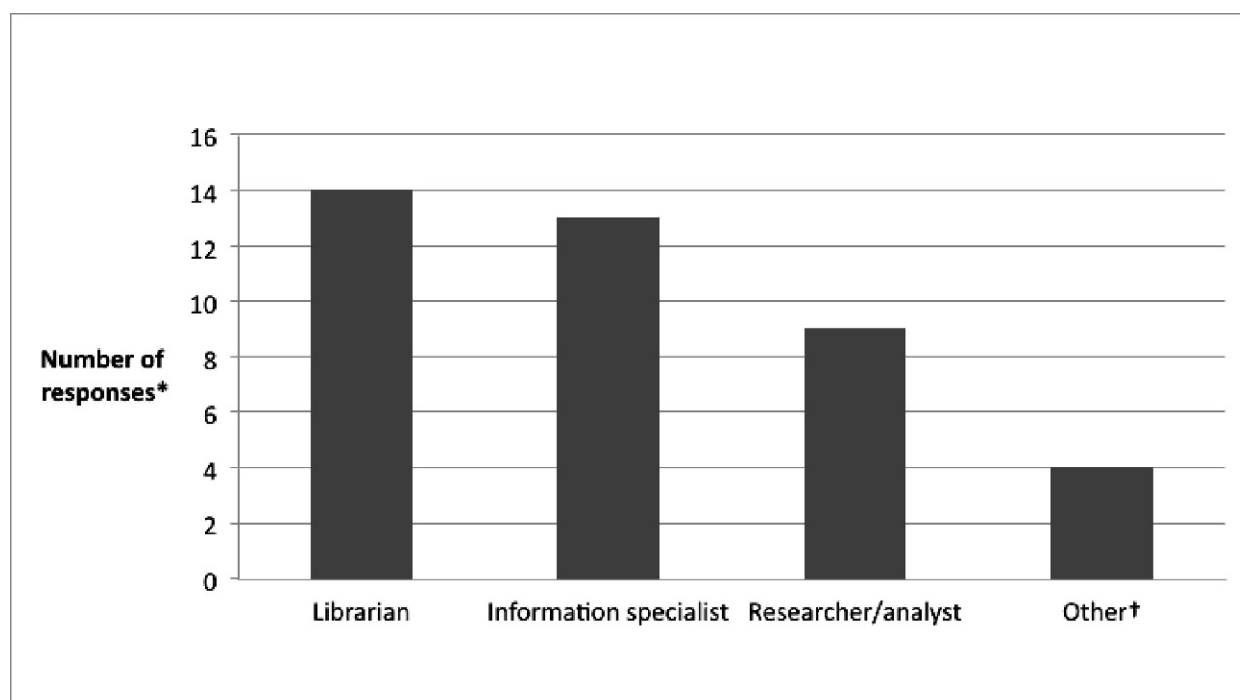
* Categories were not mutually exclusive so number of responses may be greater than number of respondents.
† Other includes trials search coordinators, knowledge managers, and non-research-specific health jobs, as well as library technicians, which in Canada typically refers to a credentialed paraprofessional library worker.

Twenty-nine respondents had a desk physically located with the researchers, and 13 had a desk in or near a library (answers were not mutually exclusive). Five worked from home, and 4 had a desk in another location or declined to answer. More REHLs ate alone (n=15) than with other library staff (n=9), researchers (n=4), other staff members (n=3), or some other arrangement (n=6). Some were supervised by a librarian (n=14), slightly more by a nonlibrarian (n=18), some were co-supervised by both (n=6), and 1 was self-employed.

Continuing education. Thirty-five of the 39 respondents indicated that they had participated in

Table 1
Frequency with which research-embedded health librarian (REHL) job responsibilities are performed

| Responsibility	Regularly	Infrequently	Never	No response
Searching literature	37	1	0	1
Attending research team meetings	27	7	4	1
Analyzing, scoping, or summarizing literature	24	12	2	1
Providing general reference services	20	13	5	1
Horizon scanning/maintaining current awareness	20	14	3	2
Writing/editing	19	15	4	1
Instructing/teaching	17	16	5	1
Conducting original research	15	13	10	1
Managing, extracting, or analyzing data	10	13	14	2
Communications/knowledge translation	9	20	8	2
Managing physical or digital library	8	16	12	3
Managing records	7	15	15	2
Supervising staff or trainee	6	17	14	2

* Shading indicates frequency of response.
Key: =0–9 responses.
     =10–19 responses.
     =20+ responses.

Figure 2
Size of regular user group of researchers
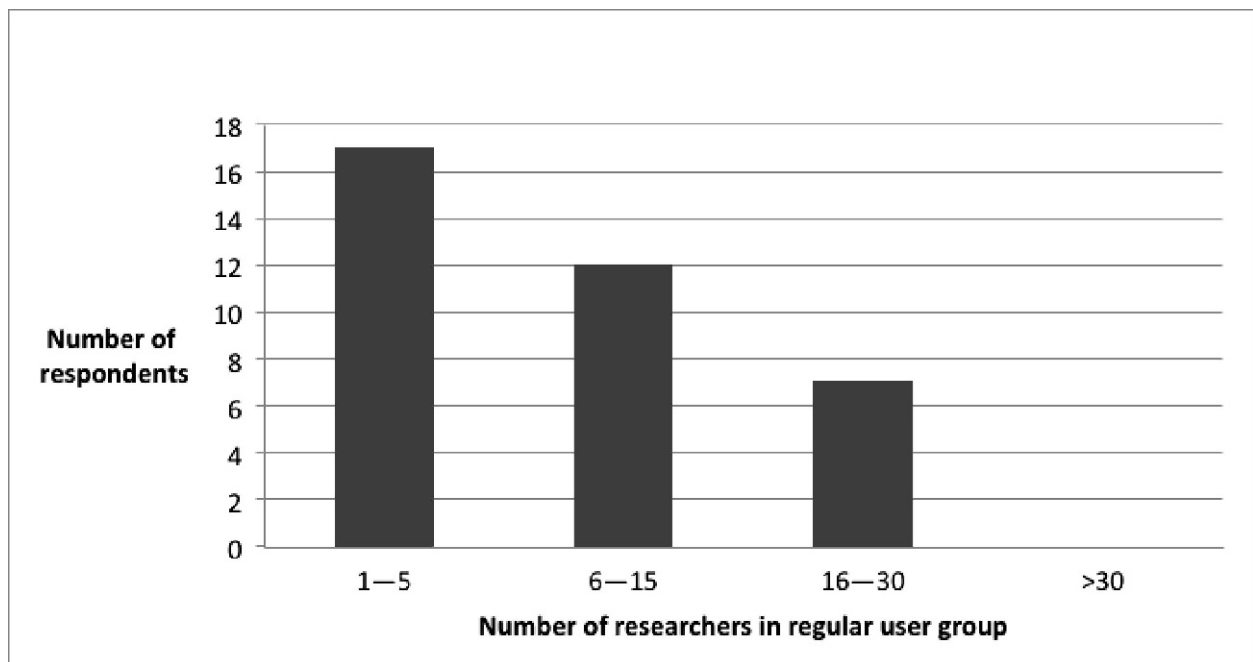
continuing education (CE) activities within the last 2 years. The most popular CE category was research methods (n=28), followed closely by health library topics (n=26). Sessions on health (n=19) and other library (n=17) topics were also attended by nearly half. The REHLs' overall institutions usually funded this CE (n=21); however, it was not uncommon for the health research group and the REHLs themselves (n=10 each) to pay. The topics on which respondents most commonly needed further training—statistics, knowledge transfer, and research methods—were not library centric (Table 2).

Table 2
Continuing education needs of REHLs

Continuing education topic	Responses
Statistics	23
Knowledge transfer	21
Research methods	18
Technology training	15
Expert searching	14
Leadership and management	14
Knowledge organization	12
Evaluation	10
Budgeting	10
Specific to projects	10
Writing skills	9
Instruction and teaching	9
Records management	8
Improving professional image	7
Presentation skills	5
Other	4
No response	2

Focus group interviews

In the four focus groups, we interviewed a total of thirteen current and recently former REHLs (ten in English, three in French). The geographic, age, and employer-type distribution of focus group participants were similar to the demographics of the REHL survey respondents [27]. Interview participants' work experience, both as librarians and specifically as REHLs, ranged from just a few months to more than thirty years. Major themes that emerged from our coding included: the work of REHLs, REHL identities, role evolution, the importance of champions in establishing and maintaining REHL roles, successes and recognition thereof, challenges of this hybrid role, and future opportunities for REHL work. To protect participant privacy, all names in this report are pseudonyms and identifying information such as province and employer are not disclosed.

Research-embedded health librarian (REHL) work. While participants' jobs varied somewhat, there was widespread consensus that expert searching—varying from systematic reviews to environmental scanning—was central to REHL work. In one focus group, participants did not mention searching. When the interviewer raised the issue, it turned out that searching was so obviously an integral part of REHL work that participants thought that it was not even worth mentioning. Julie clarified, ''I took that as an assumption. It is the bread and butter of what I do…It is my core business.''

Research methods and writing were also important skills, and participants had mixed feelings about the extent to which library school had prepared them for research. Several had taken or were planning to take additional courses on health research methods. Fay, who had a strong background in research methods prior to library school, compared her REHL role with traditional librarians' lesser involvement in research:

When I worked in the [academic health sciences] library, that was one of the things I missed—the research. So I think where I am now, I get to be involved with all different aspects of the research process.

Writing was framed as an integral part of the research process and a marker of being integrated into the full cycle of research, rather than relegated to a search-specific role. Grace emphasized the significance of strong writing skills:

You can't understate how important it is to have decent writing skills because in so much of research the currency is publications and grants and collaborating with others… Everything up to being deeply involved in writing a grant, or writing a budget, or proofreading a manuscript before we send it off to a publisher.

Project management, communications expertise, and information technology (IT) abilities were also common skills among participants. About half had additional areas of specialization (varying from linguistics to statistics), which functioned as points of pride or selling points for those individuals.

In addition to professional expertise, participants identified personal qualities they felt were important for REHL success. Chief among these was independence. Adaptability, attention to detail, and ability to work with demanding research "superstars" were also named, as well as proactivity regarding relationships and networking. Ellen explained:

[A] friend of mine with a similar position didn't last very long because she found it very lonely and isolating. So I think you have to be the type of person who really enjoys working independently. And for my particular situation, I think being proactive, listening to the users and trying to go after them more, find out what their specific needs are, and really trying to be a member, a true member of the team is important as well.''

REHL identities. Focus group participants perceived their REHL work as clearly distinct from traditional health librarianship. Grace described the commonly expressed feeling of inhabiting an entirely separate work "world":

I feel like I am in a totally different industry even though we use a lot of the same skills, because I don't work in a library. I don't manage a collection…Yeah, I really feel like it is a whole different world…The way I look at it is that I am using a lot of the same skills as a health librarian, or any other librarian. It is just that I am using them in a totally different way.

Some participants compared their REHL work with previous experiences as hospital or academic librarians. They highlighted the more focused nature of REHL work and the intimacy of relationships with one's user group. Some participants rejected the language of "users" altogether, asserting that rather than serving a population, they were working as part of a team.

The sense of difference from traditional health librarianship called into question participants' professional identities. Many experienced tension between maintaining a librarian identity and adopting a researcher identity, and there was diversity among the ways this played out for individual REHLs. Anita, who was classified as a reference librarian at her institution, explained:

I wasn't hired as a research librarian at all, but I've just slowly been asked to join more and more research groups, research teams, so I'm actually doing research with them, and now I'm doing…probably sixty or seventy percent of my time is spent doing research.

Illustrating an opposing experience, Grace described obtaining a "pretty standard" master's-level research position as a librarian: "[T]hey posted the position and…I was able to say, *Hey you people need a librarian*, and I kind of talked my way in." However, she also experienced identity challenges in this position, due to its complete lack of affiliation with the LIS world:

You know, you don't feel you have a connection to the other librarians, so it is a little bit isolating. I actually have in my career a few times had a professional crisis of, ''*Am I even a librarian anymore? Can I even call myself that?*'' And I have gotten to the point where I feel like, ''Yes, that is who I am, that is what I call myself, even if that is not my job title, even if the people around me don't really get what that means.'' I internally know what that means and that means something to me.

Another aspect of identity that arose across focus groups was the sense of becoming part of a team with shared understandings and goals. This was evident when interviewees described being integrated into the full research process or project lifecycle, as well as when they talked about their interpersonal relationships with nonlibrarian colleagues. Kelly contrasted this closeness with the lesser continuity of traditional librarian-researcher relationships:

I just have much more of an intimate relationship and I wouldn't consider the people I work with my users. I would consider them more my coworkers. I am part of the team there really, and provide much more specialized services. Whereas when I'm at the library I consider people coming by the desk as my users and I may not see that person ever again and I may not know whether what I have done for them has helped them out really or left them more confused (laughs) or what. But when I'm at [my REHL job], I am involved in a project from beginning to end, I am part of the team, I can see what goes on through the whole lifecycle.

This intimacy allowed REHLs to develop in-depth knowledge of colleagues' information needs and practices, and develop extremely tailored services.

Role evolution. Role evolution was a theme in the narratives of many REHL careers. Participants with long-time REHL jobs described evolution of the work, due both to digitization and an increasing emphasis

on research productivity and competitiveness. Some REHL positions were librarian jobs with gradually increasing research responsibilities, while others were research jobs that assumed an information specialty. Anita, an REHL whose reference librarian job morphed over time, explained, ''[T]hey just started asking me to join various interdisciplinary teams, until now it's a huge part of my job.'' Grace exemplified evolution in the opposite direction:

My job is not specifically a librarian job; it's a [research staff] position, and there's a number of different backgrounds that would have qualified to do this job. But because I do have the library background, as I've progressed in the job, I've brought more of those library skills to it…because it helps it to be a more meaningful job for me, to be able to use those skills. And I think it makes me more valuable.

REHL champions. Prominent and influential researchers or administrators, with the capacity and need to hire librarians, were among those in a category of ''champions'' that emerged in several narratives. Many REHL jobs had been started by champions with previous experience with librarians. Cathy described an administrator who, as a preexisting advocate for libraries and literacy in the community, saw an REHL as the obvious answer to her researchers' access needs. Barbara explained how a principal investigator came to hire her:

There was a librarian [at her previous workplace] that she loved. So she had a natural love for librarians. So she could see the skill set and—I don't think she realised she could hire a librarian, but it just sort of happened that I applied for the [researcher] job, and so it was kind of those two factors: the job grew and developed and also that she had met a librarian that had really influenced her.

Champions were also important to supporting ongoing REHL integration into a research group. Anita described the key role of champions in promoting her work to other researchers:

[They] are really absolute about an information specialist being a part of their research team, and that it is an essential person to their team. And…when they do presentations or talks they will actually make that really clear and sort of publicly declare that. So I think they kind of move other people over to that view.

In many cases, it was important for an REHL to also become her own champion. Many participants' narratives included the challenge of constantly having to advocate for themselves, which might have been more challenging amidst a team of nonlibrarians who were not necessarily familiar with the full scope of librarian expertise.

Heidi described a process of working her way into as many meetings as possible in order to build relationships. At first, her requests to attend meetings were met with incredulity, but ''Over the years it gets a little easier. But you still kind of have to look for these opportunities to be there, to prove to other people that you should be there, that you have something to contribute.'' Several years into her REHL position,

Heidi explained, ''You can never sort of sit back and say, *Okay, that's it. Everybody knows about me, so I don't have to do any more work.* It's always a constant.''

REHL successes. Interviewees reported professional successes such as coauthorship or sole authorship, especially of search-intensive or information-related publications. The value or helpfulness of research outputs was often emphasized, along with how enjoyable and educational the project had been. Other successes included obtaining grants, developing courses, providing instruction or guidance, and improving organizational efficiency.

REHL successes were recognized verbally and in writing in the research environment. Interviewees also described recognition from the greater health research world, both formally (e.g., coauthor status) and informally (e.g., word of mouth). However, few REHLs felt that their accomplishments had been recognized in the library community. Longtime REHL Barbara described this, with an optimistic eye to the future:

I think that that internal group that you work with definitely recognizes your value. I'm not sure that it's recognized outside of the groups you're working in. Because you're working outside of other library groups…When I started working in [research] really there wasn't that many people working as research-embedded librarians, and I don't think it was recognized as a real job—as a real library job, because you weren't working in the libraries. So, I think that's changing, so that's good.

REHL challenges. While the details of a particular position influenced REHL challenges, two themes resonated across focus groups: stress due to limited job security and the challenge of isolation from LIS colleagues and community, especially other REHLs. Many REHL jobs rely on grants or renewable contracts. Cathy described the stress of contract employment impacting her health:

I think every job I've been in is a temporary job. But I've kind of stopped thinking about that. I find you can't let yourself think that way. I've been in temporary jobs almost constantly since I was out of library school…and at one point the stress was so bad that I had [a stress-related health condition], I had—I didn't realize how stressed I was until I got a permanent full-time job and it all settled down.

Barbara described wondering if she would still be able to obtain a ''real'' library job, should she need to apply for one in the future after years of REHL work:

I wondered—or felt that, oh, we should be aspiring to get a real library job, and wondered if I was losing, or didn't have the skills to do that, because I'd focused so much on lit searching and that sort of thing, so that's—for me that was a bit of a challenge.

Isolation from colleagues, including a lack of peer feedback and mentoring, was universally identified as a challenge. Longtime REHL Fay explained:

I feel cut off…I don't get enough stimulation as a librarian, and the librarian issues around librarianship that relate to research. I think it would be wonderful to have a group—that could include all the people who are on the phone

today, where we could address issues that we all come across, and learn from each other. I think that would be really helpful…I feel like I'm kind of in limbo: I'm in research, but I'm in the middle.

Heidi expressed a common anxiety about ''keeping up'' with both fields:

I spend a lot more of my time going to continuing ed sessions and opportunities that are outside my profession than those that are in. So that is definitely an issue for me—the isolation and the fear that maybe you are not keeping up with advances in your profession.

While many attended conferences of the various health fields in which they were embedded, few said they regularly attended LIS conferences. Fay explained, ''I guess I look at a lot of the conferences for librarians, but many of them don't seem that appropriate and it's a lot of money to attend.'' Several participants had little or no funding for professional development. Many pursued online continuing education (CE) and self-directed reading in order to keep current, feeling that it was an effort to make a case to their supervisors for funding to support CE outside of their health domain.

Despite not attending much library-oriented CE, interview participants widely recognized the value of librarian peers, and those with local REHL colleagues found them quite useful. Kelly, a formerly solo REHL, described how wonderful it was to now have an REHL colleague:

It's completely different and it is such a good experience…I missed this a lot being a single librarian. Just being able to bounce ideas off somebody or if you're doing a search and you can't figure something out, just being like, *why isn't this working?* and just having someone quickly look at it being like, *Okay, this is why.* And just learning about different things that are going on in the librarian community or the latest research.

Some REHLs had attempted to find community among local health sciences or hospital librarians but did not report much success. For example, Barbara recounted that a local university, recognizing the growing number of unaffiliated health librarians, had attempted to provide a group for mutual support:

Once a month everybody that was working in health, regardless of whether or not you worked in the library, would get together and talk about various issues. So that was one venue. But quite honestly, I didn't end up going that much, because the timing wasn't convenient, really, and I worked off campus, so it would end up being a two-hour commitment—can you justify that? And a lot of the topics weren't relevant. They ended up being too university-focused, or library-focused.

Julie had a similar story about reaching out to local hospital librarians, noting, ''I don't think I figured this out very well—like this whole piece around professional support and community. I guess I wish I was better [at it], but I don't actually have a solution on how to make it better, unfortunately.''

This increased affinity for and identification with one's research colleagues was described by many participants. Cathy noted that in some ways these relationships filled in the gaps left by the lack of librarian community, explaining, ''I think you develop other professional connections, *to* your researchers. And they become a little bit of your community too. So you're kind of floating in and out of two communities of practice.'' She continued to consider the professional and personal value of these relationships, saying:

I think that's really important. Getting a couple of friends in those places, because they are the ones who will advocate for you when your contract comes up for renewal, and they're debating, *Do we want to do this again?* But also…some days you just need to get out of the office and go for coffee! And if you're on campus, fine, you've got two other librarians you can go with, But [if not] you need to sort of bond with your clients that way, I think.

REHL outlook. The general perception of the interviewed REHLs seemed to be that research-embedded work was an actively growing subfield of health librarianship. Darlene, one of the newer REHLs, stated:

One of the things that I think about with the research-embedded librarians, is that it's growing…there's lots of opportunities there, and partly because I'm so recently out of library school…I'm really interested in raising the awareness of new students coming out, that there are jobs in this field, and lots of them, possibly more than there are traditional librarian jobs.

Marianne noted that energetic REHLs were furthering the uptake of the model, stating that ''Newer librarians, and even some of those less new, have taken the initiative to expand understanding of the work that information specialists do.''

Some participants attributed the upswing in REHL work to the increased competitiveness of health research funding. Barbara pointed out, ''Research is getting more and more competitive, and anything that can help a researcher with that competitive edge—you know, keeping current and really synthesizing the information for them—I think will continue.'' To meet the demand for qualified REHLs, participants had suggestions for LIS education. Some thought that research methods classes in library and information degree programs should be expanded and that elective courses such as medical librarianship and evidence-based practice should be offered more frequently.

While there was consensus that the REHL life was not for everyone, interview participants emphasized that they loved the work. In an unsolicited wrap-up comment, Fay expressed enthusiasm for her career:

I guess I'd just like to say that I absolutely adore my job. I wouldn't trade it for any other type of position. It's just great. It's so exciting, always different, I'm always learning things…so, from that respect I am extremely happy.

Others immediately agreed, and this sentiment resonated across groups. Lucy asserted that her REHL work was probably the most interesting thing she had done in twenty years of librarian work. While REHLs faced challenges finding professional support and sometimes had to deal with difficult personalities, the opportunities to learn, develop new skills, and pursue one's own research interests were fun and rewarding. Cathy summed up common sentiments by stating:

I think it's a lot of fun. I mean I really—I've worked in hospitals, I've worked in an academic library. I think it's really fun to provide a high level of service to a small group of people, as opposed to—I don't want to say a low level of service, but I would say a very *surface* level of service to a large group of people—and frankly to some people who don't care…[T]o work with really smart, highly motivated people who really care about what they do, and are interested in what you do, is very rewarding.

DISCUSSION

Our proposed definition of REHLs focuses on librarians who participate in one or more research teams rather than on traditional library management and services and provide tailored, intensive information services to the health research teams into which they are integrated. For the purposes of this study, this definition serves us well, appearing to make sense to and resonate with the intended subpopulation of health librarians in Canada. That said, the definition may exclude some allied research-embedded librarians who are extremely embedded academic liaisons or independent information specialist consultants, and thus the definition may evolve over time. Survey and focus group results were consistent, allowing us to synthesize the data and assemble a composite portrait of a "typical" REHL:

Her information specialist position is funded by the research group within which she is embedded part-time as a solo librarian. She works alongside one to five researchers, regularly attends research team meetings, and provides literature searching, scoping, and analysis as well as current awareness and general reference. She does a fair bit of writing, editing, and instruction for the team and rarely if ever spends time managing an actual library collection.

Although our prototypical REHL wishes she had a community of REHL colleagues for professional support and development, over time she has come to really know and identify with the researchers with whom she works and enjoys their company. While she may not feel connected to the library community, her research colleagues appreciate her specialized skills and she enjoys knowing she is making a difference to health and health care. While she occasionally worries about the future of her career, on the whole the REHL loves what she is doing and would recommend this type of career to new health librarians who are up for a challenge.

This profile clearly differs from non-embedded health librarians, who typically work in libraries, manage collections, and provide discrete reference or search services, as well as from clinical information-ists who focus on patient care settings and are often required to obtain significant cross-training in health disciplines. It also differs from what REHLs were doing just a decade or two ago. According to our longest-serving REHL participants, prior to the Internet and the access it provides to vast amounts of digital information, REHLs spent more time curating personal libraries for star researchers, as opposed to functioning as a specialized researcher.

REHLs do conform to many hallmarks of embedd-edness from previous literature, including Shu-maker's trifecta of strong relationships, shared goals, and highly customized and valued contributions to the group. They also experience challenges that many other types of embedded librarians may experience, such as isolation and the need to keep up-to-date in multiple fields. One thing that appears to distinguish REHLs from other types of embedded librarians, however, is the trend toward actual identification as a researcher. While this trend is not universal, it appears typical to maintain at least a hybrid identity.‡ Other types of embedded librarians may be less inclined, or less able, to cross over without significant prior qualifications or cross-training. A legal librarian without a law degree, for example, cannot easily become a lawyer, neither can a clinical informationist readily slip into identifying as a nurse or doctor. In academia, however, the boundaries are fairly perme-able. While the growth of evidence-based librarian-ship encourages librarian-driven research in libraries, REHLs not only conduct library research, but become health researchers with an information specialization.

The evidence-based medicine movement has creat-ed an information imperative in health that has led to new opportunities for health librarians [33]. Certain research funders emphasize knowledge synthesis and translation, including systematic and scoping reviews of evidence. Given current priorities, we expect that as long as REHLs continue to provide a benefit in terms of obtaining grants and publications, they will have a secure place in the health research landscape. As clinical investigators and teams move further into research activities, some informationists who are employed by hospitals and clinical teams may grow to more closely resemble REHLs. Additionally, if evidence-informed practice continues to spread to other disciplines, similar research-embedded librari-anship trends may appear there as well.

The presence, strength, and likely growth of the REHL workforce carry implications for the profession of librarianship. REHLs feel disconnected from professional library associations, and unless associa-tions respond to the needs of this population, they risk losing REHLs to the health research field. In health research groups, to which REHLs are turning for CE as well as funding opportunities, there may be an emerging window of opportunity to create

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‡ Research-embedded health librarians (REHLs) who fully identify as researchers and not librarians may also exist but did not answer our recruitment call on library email discussion lists.

information-focused subgroups. In response to the increased decentralization of information work, library and information graduate programs should consider offering specific training, including advanced research methods, to prepare librarians for research-intensive career paths.

Limitations and future directions

The exploratory nature of this study dictates that we cannot be confident that our participants were representative of the REHL population. There is no national census of health librarians, let alone REHLs; therefore statistical significance and generalizability cannot be assessed, and the potential for response bias and social desirability bias (generally speaking and specifically related to the status of the researchers as REHL peers) as well as focus group conformity bias exists. Additionally, this study focuses on one country. Future research on REHLs in comparator countries—such as the United States, United Kingdom, and Australia—could add power to the existing analysis and allow us to tease out whether there are particularly Canadian aspects to the REHL phenomenon. Follow-up studies over time would enable us to examine changes in REHL work, and longitudinal studies would allow us to examine career trajectories that include REHL work.

CONCLUSION

REHL positions share common attributes with other forms of embedded librarianship; however, REHLs may identify more strongly as researchers than as librarians, with professional needs and rewards that differ from traditional librarians. REHLs value ''belonging'' to the research team, being involved in projects from conception through publication, and developing in-depth relationships with nonlibrarian colleagues. Yet, despite widely expressed job satisfaction, many REHLs struggle with isolation from LIS peers, appropriate professional development, and relative lack of job security in a grant-funded environment.

Gathering data and interpreting the stories of REHLs can help frame possible futures for librarianship, as information professionals face the growing opportunity (and challenge) of working in evolving infrastructures of knowledge creation, management, and communication. If REHL positions are indeed both distinct from other forms of librarianship and a growing trend, degree programs, professional associations, and libraries themselves will need to respond to the needs of this population or risk losing them to the health research field.

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